



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,017	08/15/2003	Yoshiaki Kisaka	5259-000030/01	2087

27572 7590 02/22/2007
HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

CURS, NATHAN M

ART UNIT	PAPER NUMBER
----------	--------------

2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

52F

Office Action Summary	Application No. 10/643,017	Applicant(s) KISAKA ET AL.	
	Examiner Nathan Curs	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 5-11, 13, 14, 17-21 and 24-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 12, 15, 16, 60 and 61 is/are rejected.
- 7) ☒ Claim(s) 22 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/04, 8/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 5-11, 13, 14, 17-21 and 24-59 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 30 November 2006. Applicant's reply stated that claims 1-5, 12, 15, 16, 22, 23, 60 and 61 are readable on Species 1, Subspecies A; however, claim 5 is not readable on Species 1, Subspecies A.

Drawings

2. Figures 52-54 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 3 and 4 are objected to because of the following informalities: the recitation "principal axes of polarization (PSP)" should be "principle state of polarization (PSP)". Appropriate correction is required.

Art Unit: 2613

4. Claims 22 and 23 are objected to because of the following informalities: the claims depend "any one of claims 12, 13, 15 and 17"; however claims 13 and 17 are drawn to a non-elected species.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 2 recites the limitation "separating from said optical signal... the polarization component which is parallel to, and the polarization component which is perpendicular to..."; however, the specification does not describe separating both the parallel and perpendicular polarization components from an optical signal.

7. Claims 3 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 3 and 4 respectively recite the limitations "separating the PSP... from the optical signal" and "separating the principal axes of polarization (PSP)... from the optical signal". The

Art Unit: 2613

specification does not describe separating the PSP from an optical signal, nor does it describe how this is possible.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 2-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "said one polarization component which has thus been separated". There is insufficient antecedent basis for this limitation in the claim.

Claims 3 and 4 both recite the limitation "and the polarization component which is parallel to, or the polarization component which is perpendicular to". The limitation does not recite what the component is parallel or perpendicular to, and it does not recite what is done with the component in the method.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 2, 60 and 61 are rejected under 35 U.S.C. 102(a) as being anticipated by Admitted Prior Art ("APA") (figs. 52-54 and specification page 1, line 12 to page 7, line 6).

Regarding claims 1 and 2, APA discloses a polarization mode dispersion compensation method in an optical transmission system which comprises an optical signal transmitter which sends an optical signal, an optical transmission path which is connected to said optical signal transmitter and which transmits said optical signal, and an optical signal receiver which is connected to said optical signal transmitter via said optical transmission path and which receives said optical signal (fig. 53 and specification page 2, line 18 to page 3, line 13), comprising: sending said optical signal from said optical signal transmitter to said optical transmission path, separating from said optical signal which is propagated along said optical transmission path, the polarization component which is parallel to, or the polarization component which is perpendicular to, the principal state of polarization of said optical transmission path and compensating the group velocity dispersion at said polarization component which has thus been separated and receiving by said optical signal receiver said optical signal which has been compensated (fig. 53 and specification page 2, line 18 to page 3, line 13).

Regarding claim 60, APA discloses a polarization mode dispersion compensation method in an optical transmission system which comprises an optical signal transmitter which sends an optical signal, and optical transmission path which is connected to said optical signal transmitter and which transmits said optical signal, and an optical signal receiver which is connected to said optical signal transmitter via said optical transmission path and which receives said optical signal (fig. 54 and specification page 4, line 1 to page 5, line 7), comprising: sending said optical signal from said optical transmitter; separating from said optical signal which is propagated along said optical transmission path, either one of or both of a polarization component parallel to the principal state of polarization of said optical transmission path and a polarization component perpendicular to the principal state of polarization of said

Art Unit: 2613

optical transmission path; compensating the group velocity dispersion at said one polarization component which has thus been separated, or the group velocity dispersion at either one of said both polarization components which have thus been separated; and receiving by said optical signal receiver said optical signal which has been compensated (fig. 54 and specification page 4, line 1 to page 5, line 7).

Regarding claim 61, APA discloses in an optical transmission system which comprises an optical signal transmitter which sends an optical signal, an optical transmission path which is connected to said optical signal transmitter and which transmits said optical signal, and an optical signal receiver which is connected to said optical signal transmitter via said optical transmission path and which receives said optical signal, a polarization mode dispersion compensation device provided upon said transmission path (fig. 54 and specification page 4, line 1 to page 5, line 7) comprising: a polarization component separation device which separates from said optical signal which is propagated along said optical transmission path, either one of or both of a polarization component parallel to the principal state of polarization of said optical transmission path and a polarization component perpendicular to the principal state of polarization of said optical transmission path; and a dispersion compensation device which compensates the group velocity dispersion at said one polarization component which has thus been separated by the polarization component separation device, or the group velocity dispersion at either one of said both polarization components which have thus been separated by the polarization component separation device (fig. 54 and specification page 4, line 1 to page 5, line 7).

12. Claims 3, 4 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hideaki et al. ("Hideaki") (Japanese Patent Publication No. 2000-356760).

Regarding claims 3 and 4, Hideaki discloses a polarization mode dispersion compensation method in an optical transmission system which comprises an optical signal transmitter which sends an optical signal, an optical transmission path which is connected to said optical signal transmitter and which transmits said optical signal, and an optical signal receiver which is connected to said optical signal transmitter via said optical transmission path and which receives said optical signal (fig. 1 and paragraphs 0027-0030), comprising: outputting said optical signal from said optical signal transmitter (fig. 1, element 10); receiving input of said optical signal, and converting said optical signal to circular polarization or to linear polarization (fig. 1, element 12 and paragraph 0027); sending said optical signal which has been thus converted to said optical transmission path (fig. 1, element 14); a PMD medium which is connected to said optical transmission path is provided in advance at the signal reception side of said optical transmission path, said optical transmission path and said PMD medium are made so that the principal axes of polarization (PSP) of said optical transmission path and said PMD medium are linearly polarized or circularly polarized (fig. 1, elements 12 and 14 and paragraph 0027); compensating the group velocity dispersion at said polarization component which has thus been separated (fig. 1, elements 16, 22, 24, 26 and 28 and paragraphs 0028-0030); and receiving by said optical signal receiver said optical signal which has been compensated (fig. 1, element 20 and paragraph 0029).

Regarding claim 12, Hideaki discloses in an optical transmission system which comprises an optical signal transmitter which sends an optical signal, an optical transmission path which is connected to said optical signal transmitter and which transmits said optical signal, and an optical signal receiver which is connected to said optical signal transmitter via said optical transmission path and which receives said optical signal, a polarization mode dispersion compensation device, provided upon said transmission path (fig. 1 and paragraphs 0027-0030),

Art Unit: 2613

and comprising: a polarization controller which converts the polarization state of the optical signal which has been outputted from said optical signal transmitter (fig. 1, element 12 and paragraph 0027); a polarizer which separates out a specified polarization component from the optical signal which is outputted from said polarization controller (fig. 1, element 16 and paragraph 0028); a waveform deterioration detector which detects waveform deterioration of the polarization component which has been separated out by said polarizer (fig. 1, element 24, 26 and 28 and paragraph 0029); a control device which controls said polarization controller so that the waveform deterioration which is detected by said waveform deterioration detector becomes a minimum (fig. 1, element 28 and paragraph 0029) and an automatic dispersion compensator which compensates the group velocity dispersion of the polarization component which has been separated out by said polarizer (fig. 1 and paragraph 0030).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideaki (Japanese Patent Publication No. 2000-356760) in view of Penninckx et al. ("Penninckx") (US Patent Application Publication No. 2002/0003916).

Regarding claim 15, Hideaki discloses in an optical transmission system which comprises an optical signal transmitter which sends an optical signal, an optical transmission path which is connected to said optical signal transmitter and which transmits said optical signal, and an optical signal receiver which is connected to said optical signal transmitter via said

Art Unit: 2613

optical transmission path and which receives said optical signal, a polarization mode dispersion compensation device, provided upon said transmission path (fig. 1 and paragraphs 0027-0030), and comprising: a polarization controller which converts the polarization state of the optical signal which has been outputted from said optical signal transmitter (fig. 1, element 12 and paragraph 0027); a polarizer which separates out a specified polarization component from the optical signal which is outputted from said DGD element (fig. 1, element 16 and paragraph 0028); a waveform deterioration detector which detects waveform deterioration of the polarization component which has been separated out by said polarizer (fig. 1, element 24, 26 and 28 and paragraph 0029); a control device which controls said polarization controller so that the waveform deterioration which is detected by said waveform deterioration detector becomes a minimum (fig. 1, element 28 and paragraph 0029); and an automatic dispersion compensator which compensates the group velocity dispersion of the polarization component which has been separated out by said polarizer (fig. 1 and paragraph 0030). Hideaki does not disclose a Differential Group Delay (DGD) element which allocates a PMD to the optical signal which is outputted from said polarization controller. Penninckx teaches a PMD compensator where a DGD generator is used after a polarization controller (fig. 1 and paragraph 0018). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a DGD generator after the polarization controller of Hideaki to provide the benefit of compensating differential delay, as taught by Penninckx.

Regarding claim 16, the combination of Hideaki and Penninckx discloses a polarization mode dispersion compensation device according to claim 15, further comprising a polarization setting device that sets the polarization state of the optical signal which is outputted from said optical signal transmitter to circular polarization or to linear polarization (Hideaki: fig. 1, element 12 and paragraph 0027).

Double Patenting

15. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

16. Applicant is advised that should claim 3 be found allowable, claim 4 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Allowable Subject Matter

17. Claims 22 and 23 are objected to as being dependent upon a rejected base claim and for the claim objections describe above, but would be allowable if the claim objections describe above were corrected and if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:


Art Unit: 2613

- US Patent Application Publication No. 2002/0118422 – discloses a PMD compensator system and method using a polarization controller, a polarize beam splitter, a PMD compensator, a control device in an optical tap feedback, and an output to receiver.

19. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairdirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600